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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,457	06/26/2003	Yutaka Yoshida	12142-3	9405

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EXAMINER	
CAO, HUEDUNG X	

ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/608,457	YOSHIDA ET AL.	
	Examiner	Art Unit	
	Huedung X. Cao	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *22-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 22-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over NANT et al. (6,563,474) in view of FUKUMOTO (US 6.294.974 B1).

As per claim 22, Nantz teaches the claimed, multiaxial antenna, comprising:

a generally cross-shaped core, which includes an X-axis arm portion and an Y-axis arm portion extending perpendicular to each other which Nantz teaches column 4, lines 56-65, column 5, lines 51-59; an X-axis coil portion provided about the X-axis arm

portion; an Y-axis coil portion provided about the Y-axis arm portion which Nantz teaches in column 5, lines 51-59, figures 3-4. It is noted that Nantz does not explicitly teach a casing defining an accommodating concave portion, wherein the accommodating concave portion has a shape corresponding to that of the core, wherein the accommodating concave portion accommodates the core equipped with the coil portions such that the core is positioned in the accommodating concave portion as claimed. However, Fukumoto teaches such casing with the concave portion is well known in the art (Fukumoto, column 3, lines 4-43; figures 2 and 3). It would have been obvious to a person of ordinary skill in the art to implement Nantz by using Fukumoto's casing which has a concave portion, doing so it would reduce the size of the antenna and improve the performance of the antenna.

Claim 23 adds into claim 22, wherein a Z-axis coil portion provided about a Z axis that extends perpendicular to the X-axis arm portion and the Y-axis arm portion which Nantz teaches in column 5, lines 14-19.

Claim 24 adds into claim 23, wherein the Z-axis coil portion is accommodated in the accommodating concave portion which Fukumoto teaches in column 5, lines 10-13.

Claim 25 adds into claim 24, wherein the Z-axis coil portion is displaced from the core in relation to a direction of the Z-axis which Fukumoto teaches in column 2, lines 39-48. It would have been obvious because the coils of three axis overlapped each others.

Claim 26 adds into claim 23, wherein the Z-axis coil portion is wound about the

casing which Nantz does not explicitly teach. However, it would have been obvious because such casing improves the generation of magnetic field from the core.

Claim 27 adds into claim 26, wherein the casing has a winding concave portion at its periphery for receiving the Z axis coil portion which Fukumoto teaches in column 8, lines 53-65.

Claim 28 adds into claim 26, wherein the casing is shaped generally like a cross and has four radially outer tips, wherein the Z-axis coil portion formed by winding an electric wire along lines that are parallel to lines passing through the tips of the casing which Nantz teaches in figure 4.

Claim 29 adds into claim 28, wherein the casing includes caps provided at the four tips, each cap having a winding concave portion for receiving the Z axis coil portion which Fukumoto teaches in figures 2 and 3.

Claim 30 adds into claim 22, wherein the casing is shaped generally like a rectangle, wherein the core is accommodated in the accommodating concave portion so that the X axis arm portion and the Y axis arm portion extend along the diagonal lines of the casing which Fukumoto teaches in figures 2 and 3.

Claim 31 adds into claim 22, further comprising a plurality of contacts, each contact being connected to one of the coil portions, wherein the contacts extend through, and are fixed to, a circuit board on which the multiaxial antenna chip is mounted which Nantz does not explicitly teach. However, would have been obvious because the contacts in a chip mount circuit board are arranged to be fixed throughout the circuit.

Claim 32 adds into claim 22, further comprising a claw portion, wherein the claw portion extends through, and is engaged with, a circuit board on which the multiaxial antenna chip is mounted which Nantz does not explicitly teach. However, it would have been obvious because the circuit board need to be hold firmly in the device.

Claim 33 adds into claim 22, wherein the core includes an X-axis core piece and a Y-axis core piece, wherein the core pieces extend perpendicular to each other and are laid on top of each other, and wherein the X-axis core piece includes the X-axis arm portion, and the Y-axis core piece includes the Y-axis arm portion which Nantz teaches in column 4, lines 56-65.

Claim 34 adds into claim 33, wherein the core pieces are laid on top of each other such that portions of the core pieces that are not laid on top of each other are in the same plane which Nantz does not explicitly teach. However, it would have been obvious because such arrangement reduces the space to store this device.

Claim 35 adds into claim 33, wherein at least one of the core pieces has a concave portion at a section that is laid on top of the other core piece, wherein the other core piece is engaged with the concave portion which Fukumoto teaches in figures 2 and 3. It would have been obvious because such arrangement reduces the space to store this device.

Claim 36 adds into claim 33, wherein at least one of the core pieces is bent such that a section that is laid on top of the other core piece is displaced relative to the remainder of the bent core piece in a direction away from the other core piece which Nantz does not explicitly teach. However, it would have been obvious because such

arrangement reduces the space to store this device.

Claim 37 adds into claim 33, wherein the X-axis coil portion is provided only in a section of the X-axis core piece that is not laid on top of the Y-axis core piece, and wherein the Y-axis coil portion is provided only in a section of the Y-axis core piece that is not laid on top of the X axis core piece which Nantz does not explicitly teach. However, it would have been obvious because such arrangement reduces the space to store this device.

Claim 38 adds into claim 33, wherein wherein the X-axis coil portion is provided both in a section of the X-axis core piece that is laid on top of the Y-axis core piece and in a section of the X-axis core piece that is not laid on top of the Y-axis core piece, and wherein the Y-axis coil portion is provided both in a section of the Y-axis core piece that is laid on top of the X-axis core piece and in a section of the Y-axis core piece that is not laid on top of the X-axis core piece which Nantz does not explicitly teach. However, it would have been obvious because such arrangement reduces the space to store this device.

Claim 39 adds into claim 22, wherein the core includes an X-axis core piece and a Y-axis core piece, wherein the core pieces extend perpendicular to each other and are laid on top of each other, and wherein the X-axis core piece includes the X-axis arm portion, and the Y-axis core piece includes the Y-axis arm portion which nantz teaches in figures 3-4.

Claim 40 adds into claim 22, wherein the core is flexible which Nantz does not explicitly teach. However, it would have been obvious to use a flexible core because it

improves the durability of the circuit.

Claim 41 adds into claim 40, wherein the core is constructed by stacking a plurality of flexible sheets which Nantz does not explicitly teach. However, it would have been obvious to use a flexible core because it improves the durability of the circuit and reduces the heat.

Claim 42 adds into claim 22, wherein the casing is made of a synthetic resin which Fukumoto teaches in column 5, line 13.

Claim 43 adds into claim 22, wherein the accommodating concave portion has an opening, the opening being covered with a cover which Fukumoto teaches in column 5, lines 47-49.

Claim 44 is similar in scope to claim 22; therefore, it is rejected for the same reason.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquires

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Huedung Cao
Patent Examiner

Don Wong
Supervisory Patent Examiner
Technology Center 2800